

Remarks

Favorable reconsideration of this application, in view of the above amendments and in light of the following remarks and discussion, is respectfully requested.

Claims 15-21 and 30 are currently pending in the application; Claim 15-21 and 30 having been amended, and non-elected Claims 22-29 and 31 having been canceled, by way of the present response.

In the outstanding Office Action, Claims 15, 16, 20, and 21 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 2,939,923 to Henderson or as being anticipated by German Publication No. 3826897 to Vater et al. (Vater). Claim 30 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Henderson or as being unpatentable over Vater. Claims 15-21 and 30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over German Publication No. 297 18 483 to Lux-Wellenhof. Applicants respectfully assert that the rejections of the claims have been overcome for at least the following reasons.

As stated above, Claims 15-21 and 30 have been amended. Applicants respectfully assert that support for the changes to the claims is self evident from the originally filed disclosure, including the original claims, and that therefore no new matter has been added.

The present invention is directed to an earpiece for behind-the-ear parts of hearing acoustics devices. Independent Claim 15 recites a shank adapted to follow an outer edge of a patient's cavum conchae. An angled traverse segment is connected with the shank. The angled traverse segment is configured to be disposed above the patient's antitragus and to extend in a direction of the patient's porus acusticus externus. A broadened portion is disposed on the angled traverse segment. The

broadened portion is configured to hold a signal conductor in an upper region of the patient's auditory canal and to prevent the signal conductor from covering a portion of a lower region of the patient's auditory canal.

Henderson is directed to hearing aid plastic ear pieces. As shown in Figures 6-9, for example, of Henderson, a tube 225 which projects into an auditory canal from a concha fitting 155 is somewhat elongated and carries a multiple sponge material head.¹

Because the concha fitting 155 appears to include structure that covers an entirety of the auditory canal, for example, in Henderson, Applicants respectfully assert that Henderson does not teach or suggest the claimed features of a broadened portion configured to hold a signal conductor in an upper region of a patient's auditory canal and to prevent the signal conductor from covering a portion of a lower region of the patient's auditory canal, as recited in independent Claim 15. Specifically, independent Claim 15 recites "a broadened portion disposed on the angled traverse segment configured to hold a signal conductor in an upper region of the patient's auditory canal and to prevent the signal conductor from covering a portion of a lower region of the patient's auditory canal."

Further, Applicants respectfully note that the device of Henderson, as well as the devices of Vater and Lux-Wellenhof (discussed below), suffer from disadvantages including causation of an occluding effect. The underlying cause of the occlusion effect is vibration of the flesh and jaw during speaking by the user of the device. In particular, closed vowel sounds, such as "oo" and "ee," produce sound pressure levels of between about 135 to about 140 db at the back of the mouth, which cause the flesh and the jaw to vibrate. The vibration is transmitted to the wall of the ear canal, where

¹ Column 3, lines 38-65.

the cartilaginous portion of the wall is free to vibrate. When the ear canal is open, such as with the device recited in the claims, the sounds do not interfere with the hearing of the user. When the ear canal is closed by the device of Henderson, (or the device of Vater or Lux-Wellenhof) however, a sound pressure increase of between about 20 to about 30 db occurs at low frequencies during the speaking of the closed vowel sounds. However, an increase in sound pressure does not occur for open vowels sounds, such as "ah," because the sound pressure in the back of the mouth with the jaw open is only about 115 db. Thus, the user of the device of Henderson (or the device of Vater or Lux-Wellenhof) alternately hears annoying increases in the low pressure frequency levels of closed vowel sounds and no increase at all in the low pressure frequency levels of open vowel sounds, leading to complaints that there is an echo in the voice of the user of the device, or that the user's voice sounds hollow.² Conversely, the device as recited in the claims has a minimum possible effect on the auditory canal and a hearing capacity that still exists in a patient is impaired as little as possible in terms of its natural effects.³

Thus, for at least these reasons, Applicants respectfully request that the rejection of independent Claim 15 under 35 U.S.C. § 102(b) in view of Henderson be withdrawn.

Similarly, Vater, Applicants' understanding of which is based on the figures, appears to show an earpiece 4 that is not an "open" behind-the-ear (BTE) device as discussed through Applicants' disclosure, and which therefore covers an entirety of an auditory canal. Thus, Applicants respectfully assert that Vater does not teach or

² Killion, Mead C., Ethymotic Research, Elk Grove Village, IL/USA – 46. Internationaler Hörgeräte-Akustiker-Kongress 2001.

³ Please see, in part, page 1, 2d paragraph, of the originally filed English language translation of the international application.

suggest the claimed features of a broadened portion configured to hold a signal conductor in an upper region of a patient's auditory canal and to prevent the signal conductor from covering a portion of a lower region of the patient's auditory canal, as recited in independent Claim 15.

Thus, for at least these reasons, Applicants respectfully request that the rejection of independent Claim 15 under 35 U.S.C. § 102(b) in view of Vater be withdrawn.

Lux-Wellenhof, Applicants' understanding of which is based on the figures, appears to show an earpiece 10 that also is not an "open" BTE device, and which therefore covers an entirety of an auditory canal. Thus, Applicants respectfully assert that Lux-Wellenhof does not teach or suggest the claimed features of a broadened portion configured to hold a signal conductor in an upper region of a patient's auditory canal and to prevent the signal conductor from covering a portion of a lower region of the patient's auditory canal, as recited in independent Claim 15.

Thus, for at least these reasons, Applicants respectfully request that the rejection of independent Claim 15 under 35 U.S.C. § 103(a) in view of Lux-Wellenhof be withdrawn.

Applicants respectfully assert that the outstanding grounds of rejection of independent Claim 15 have been overcome for the reasons discussed above. Thus, for at least these reasons, Applicants respectfully request the allowance of independent Claim 15.

Dependent Claims 16-21 and 30 depend from independent Claim 15, and are therefore also allowable for at least the same reasons as the independent claim, as well as for their own features. Thus, for at least these reasons, Applicants respectfully

request that the rejections of dependent Claims 16-21 and 30 under 35 U.S.C. §§ 102(b) and 103(a) be withdrawn and the dependent claims allowed.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 15-21 and 30 is earnestly solicited.

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Reply to Office Action of April 23, 2003

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact the undersigned representative at the below listed telephone number.



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Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'G. Maier', written over the printed name.

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